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APR 12 2002

TECH CENTER 1600/2900



1644

RAW SEQUENCE LISTING
 PATENT APPLICATION: US/09/454,651B

DATE: 04/08/2002
 TIME: 10:39:40

Input Set : A:\SEQLIST.txt
 Output Set: N:\CRF3\04082002\I454651B.raw

ENTERED

SEQUENCE LISTING

C--> 5 (1) GENERAL INFORMATION:

(i) APPLICANT: Linsley, Peter S.
 Ledbetter, Jeffrey A.
 Damle, Nitin K.
 Brady, William
 Wallace, Philip M.

C--> 13 (ii) TITLE OF INVENTION: CTLA4/CD28Ig HYBRID FUSION
 PROTEINS AND USES THEREOF

16 (iii) NUMBER OF SEQUENCES: 33

18 (iv) CORRESPONDENCE ADDRESS:

(A) ADDRESSEE: Mandel & Adriano
 (B) STREET: 35 N. Arroyo Parkway, Suite 60
 (C) CITY: Pasadena
 (D) STATE: California
 (E) COUNTRY: USA
 (F) ZIP: 91103

26 (v) COMPUTER READABLE FORM:

(A) MEDIUM TYPE: Diskette
 (B) COMPUTER: IBM Compatible
 (C) OPERATING SYSTEM: DOS
 (D) SOFTWARE: FastSEQ Version 2.0

32 (vi) CURRENT APPLICATION DATA:

(A) APPLICATION NUMBER: US/09/454,651B
 (B) FILING DATE: 06-Dec-1999
 (C) CLASSIFICATION:

37 (vii) PRIOR APPLICATION DATA:

(A) APPLICATION NUMBER: 08/228,208
 (B) FILING DATE: 15-APR-1994
 (A) APPLICATION NUMBER: 08/008,898
 (B) FILING DATE: 22-JAN-1993
 (A) APPLICATION NUMBER: 07/723,617
 (B) FILING DATE: 27-JUL-1991

48 (viii) ATTORNEY/AGENT INFORMATION:

(A) NAME: Adriano, Sarah B
 (B) REGISTRATION NUMBER: 34,470
 (C) REFERENCE/DOCKET NUMBER: 30436.30USD1

53 (ix) TELECOMMUNICATION INFORMATION:

(A) TELEPHONE: 626 395-7801
 (B) TELEFAX: 626 395-0694
 (C) TELEX:

59 (2) INFORMATION FOR SEQ ID NO: 1:

60 (i) SEQUENCE CHARACTERISTICS:

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61          (A) LENGTH: 39 base pairs
62          (B) TYPE: nucleic acid
63          (C) STRANDEDNESS: single
64          (D) TOPOLOGY: linear
65      (ii) MOLECULE TYPE: DNA (genomic)
66      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 1:
68 CTAGCCACTG AAGCTTCACC ATGGGTGTAC TGCTCACAC      39
71 (2) INFORMATION FOR SEQ ID NO: 2:
72      (i) SEQUENCE CHARACTERISTICS:
73          (A) LENGTH: 39 base pairs
74          (B) TYPE: nucleic acid
75          (C) STRANDEDNESS: single
76          (D) TOPOLOGY: linear
77      (ii) MOLECULE TYPE: DNA (genomic)
78      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 2:
80 TGGCATGGGC TCCTGATCAG GCTTAGAAGG TCCGGGAAA      39
83 (2) INFORMATION FOR SEQ ID NO: 3:
84      (i) SEQUENCE CHARACTERISTICS:
85          (A) LENGTH: 39 base pairs
86          (B) TYPE: nucleic acid
87          (C) STRANDEDNESS: single
88          (D) TOPOLOGY: linear
89      (ii) MOLECULE TYPE: DNA (genomic)
90      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 3:
92 TTTGGGCTCC TGATCAGGAA AATGCTCTTG CTTGGTTGT      39
95 (2) INFORMATION FOR SEQ ID NO: 4:
96      (i) SEQUENCE CHARACTERISTICS:
97          (A) LENGTH: 84 base pairs
98          (B) TYPE: nucleic acid
99          (C) STRANDEDNESS: single
100         (D) TOPOLOGY: linear
101      (ii) MOLECULE TYPE: DNA (genomic)
102      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 4:
104 AAGCAAGAGC ATTTTCCTGA TCAGGAGCCC AAATCTTCTG ACAAAACTCA CACATCCCCA      60
106 CCGTCCCCAG CACCTGAACCT CCTG      84
109 (2) INFORMATION FOR SEQ ID NO: 5:
110      (i) SEQUENCE CHARACTERISTICS:
111          (A) LENGTH: 41 base pairs
112          (B) TYPE: nucleic acid
113          (C) STRANDEDNESS: single
114          (D) TOPOLOGY: linear
115      (ii) MOLECULE TYPE: DNA (genomic)
116      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 5:
118 CTTGACCAG TCTAGAAGCA TCCTCGTGCG ACCGCGAGAG C      41
121 (2) INFORMATION FOR SEQ ID NO: 6:
122      (i) SEQUENCE CHARACTERISTICS:
123          (A) LENGTH: 47 base pairs
124          (B) TYPE: nucleic acid
125          (C) STRANDEDNESS: single

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126         (D) TOPOLOGY: linear
127     (ii) MOLECULE TYPE: DNA (genomic)
128     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 6:
130 CATTGCACAG TCAAGCTTCC ATGCCCATGG GTTCTCTGGC CACCTTG      47
133 (2) INFORMATION FOR SEQ ID NO: 7:
134     (i) SEQUENCE CHARACTERISTICS:
135         (A) LENGTH: 39 base pairs
136         (B) TYPE: nucleic acid
137         (C) STRANDEDNESS: single
138         (D) TOPOLOGY: linear
139     (ii) MOLECULE TYPE: DNA (genomic)
140     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 7:
142 ATCCACAGTG CAGTGATCAT TTGGATCCTG GCATGTGAC      39
145 (2) INFORMATION FOR SEQ ID NO: 8:
146     (i) SEQUENCE CHARACTERISTICS:
147         (A) LENGTH: 65 base pairs
148         (B) TYPE: nucleic acid
149         (C) STRANDEDNESS: single
150         (D) TOPOLOGY: linear
151     (ii) MOLECULE TYPE: DNA (genomic)
152     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 8:
154 CTCAGTCTGG TCCTTGCACT CCTGTTTCCA AGCATGGCGA GCATGGCAAT GCACGTGGCC      60
156 CAGCC      65
159 (2) INFORMATION FOR SEQ ID NO: 9:
160     (i) SEQUENCE CHARACTERISTICS:
161         (A) LENGTH: 33 base pairs
162         (B) TYPE: nucleic acid
163         (C) STRANDEDNESS: single
164         (D) TOPOLOGY: linear
165     (ii) MOLECULE TYPE: DNA (genomic)
166     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 9:
168 TTTGGGCTCC TGATCAGAAAT CTGGGCACGG TTG      33
171 (2) INFORMATION FOR SEQ ID NO: 10:
172     (i) SEQUENCE CHARACTERISTICS:
173         (A) LENGTH: 72 base pairs
174         (B) TYPE: nucleic acid
175         (C) STRANDEDNESS: single
176         (D) TOPOLOGY: linear
177     (ii) MOLECULE TYPE: DNA (genomic)
178     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 10:
180 CTAGCCACTG AAGCTTCACC AATGGGTGTA CTGCTCACAC AGAGGACGCT GCTCAGTCTG      60
182 GTCCTTGAC TC      72
185 (2) INFORMATION FOR SEQ ID NO: 11:
186     (i) SEQUENCE CHARACTERISTICS:
187         (A) LENGTH: 33 base pairs
188         (B) TYPE: nucleic acid
189         (C) STRANDEDNESS: single
190         (D) TOPOLOGY: linear
191     (ii) MOLECULE TYPE: DNA (genomic)

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192      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 11:
194 GCAATGCACG TGGCCCAGCC TGCTGTGGTA GTG
197 (2) INFORMATION FOR SEQ ID NO: 12:
198      (i) SEQUENCE CHARACTERISTICS:
199          (A) LENGTH: 45 base pairs
200          (B) TYPE: nucleic acid
201          (C) STRANDEDNESS: single
202          (D) TOPOLOGY: linear
203      (ii) MOLECULE TYPE: DNA (genomic)
204      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 12:
206 TGATGTAACA TGTCTAGATC AATTGATGGG AATAAAATAA GGCTG
209 (2) INFORMATION FOR SEQ ID NO: 13:
210      (i) SEQUENCE CHARACTERISTICS:
211          (A) LENGTH: 561 nucleotides
212          (B) TYPE: nucleic acid
213          (C) STRANDEDNESS: single
214          (D) TOPOLOGY: linear
215      (ii) MOLECULE TYPE: DNA (genomic)
216      (ix) FEATURE:
217          (A) NAME/KEY: CDS
218          (B) LOCATION: 1..561
220      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 13:
222 GCA ATG CAC GTG GCC CAG CCT GCT GTG GTA CTG GCC AGC AGC CGA GGC
223 Ala Met His Val Ala Gln Pro Ala Val Val Leu Ala Ser Ser Arg Gly
224 1 5 10 15
226 ATC GCC AGC TTT GTG TGT GAG TAT GCA TCT CCA GGC AAA GCC ACT GAG
227 Ile Ala Ser Phe Val Cys Glu Tyr Ala Ser Pro Gly Lys Ala Thr Glu
228 20 25 30
230 GTC CGG GTG ACA GTG CTT CGG CAG GCT GAC AGC CAG GTG ACT GAA GTC
231 Val Arg Val Thr Val Leu Arg Gln Ala Asp Ser Gln Val Thr Glu Val
232 35 40 45
234 TGT GCG GCA ACC TAC ATG ATG GGG AAT GAG TTG ACC TTC CTA GAT GAT
235 Cys Ala Ala Thr Tyr Met Met Gly Asn Glu Leu Thr Phe Leu Asp Asp
236 50 55 60
238 TCC ATC TGC ACG GGC ACC TCC AGT GGA AAT CAA GTG AAC CTC ACT ATC
239 Ser Ile Cys Thr Gly Thr Ser Ser Gly Asn Gln Val Asn Leu Thr Ile
240 65 70 75 80
242 CAA GGA CTG AGG GCC ATG GAC ACG GGA CTC TAC ATC TGC AAG GTG GAG
243 Gln Gly Leu Arg Ala Met Asp Thr Gly Leu Tyr Ile Cys Lys Val Glu
244 85 90 95
246 CTC ATG TAC CCA CCG CCA TAC TAC CTG GGC ATA GGC AAC GGA ACC CAG
247 Leu Met Tyr Pro Pro Pro Tyr Tyr Leu Gly Ile Gly Asn Gly Thr Gln
248 100 105 110
250 ATT TAT GTA ATT GAT CCA GAA CCG TGC CCA GAT TCT GAC TTC CTC CTC
251 Ile Tyr Val Ile Asp Pro Glu Pro Cys Pro Asp Ser Asp Phe Leu Leu
252 115 120 125
254 TGG ATC CTT GCA GCA GTT AGT TCG GGG TTG TTT TTT TAT AGC TTT CTC
255 Trp Ile Leu Ala Ala Val Ser Ser Gly Leu Phe Phe Tyr Ser Phe Leu
256 130 135 140

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```

258 CTC ACA GCT GTT TCT TTG AGC AAA ATG CTA AAG AAA AGA AGC CCT CTT      480
259 Leu Thr Ala Val Ser Leu Ser Lys Met Leu Lys Lys Arg Ser Pro Leu
260 145                      150                      155                      160
262 ACA ACA GGG GTC TAT GTG AAA ATG CCC CCA ACA GAG CCA GAA TGT GAA      528
263 Thr Thr Gly Val Tyr Val Lys Met Pro Pro Thr Glu Pro Glu Cys Glu
264                      165                      170                      175
266 AAG CAA TTT CAG CCT TAT TTT ATT CCC ATC AAT
267 Lys Gln Phe Gln Pro Tyr Phe Ile Pro Ile Asn      561
268                      180                      185
271 (2) INFORMATION FOR SEQ ID NO: 14:
272     (i) SEQUENCE CHARACTERISTICS:
273         (A) LENGTH: 187 amino acids
274         (B) TYPE: amino acid
275         (D) TOPOLOGY: linear
276     (ii) MOLECULE TYPE: protein
277     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 14:
279 Ala Met His Val Ala Gln Pro Ala Val Val Leu Ala Ser Ser Arg Gly
280 1      5      10      15
282 Ile Ala Ser Phe Val Cys Glu Tyr Ala Ser Pro Gly Lys Ala Thr Glu
283      20      25      30
285 Val Arg Val Thr Val Leu Arg Gln Ala Asp Ser Gln Val Thr Glu Val
286      35      40      45
288 Cys Ala Ala Thr Tyr Met Met Gly Asn Glu Leu Thr Phe Leu Asp Asp
289      50      55      60
291 Ser Ile Cys Thr Gly Thr Ser Ser Gly Asn Gln Val Asn Leu Thr Ile
292 65      70      75      80
294 Gln Gly Leu Arg Ala Met Asp Thr Gly Leu Tyr Ile Cys Lys Val Glu
295      85      90      95
297 Leu Met Tyr Pro Pro Tyr Tyr Leu Gly Ile Gly Asn Gly Thr Gln
298      100     105     110
300 Ile Tyr Val Ile Asp Pro Glu Pro Cys Pro Asp Ser Asp Phe Leu Leu
301      115     120     125
303 Trp Ile Leu Ala Ala Val Ser Ser Gly Leu Phe Phe Tyr Ser Phe Leu
304      130     135     140
306 Leu Thr Ala Val Ser Leu Ser Lys Met Leu Lys Lys Arg Ser Pro Leu
307 145      150      155      160
309 Thr Thr Gly Val Tyr Val Lys Met Pro Pro Thr Glu Pro Glu Cys Glu
310      165     170     175
312 Lys Gln Phe Gln Pro Tyr Phe Ile Pro Ile Asn
313      180     185
316 (2) INFORMATION FOR SEQ ID NO: 15:
317     (i) SEQUENCE CHARACTERISTICS:
318         (A) LENGTH: 18 base pairs
319         (B) TYPE: nucleic acid
320         (C) STRANDEDNESS: single
321         (D) TOPOLOGY: linear
322     (ii) MOLECULE TYPE: DNA (genomic)
323     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 15:
325 AATACGACTC ACTATAGG

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VERIFICATION SUMMARY

PATENT APPLICATION: US/09/454,651B

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Input Set : A:\SEQLIST.txt

Output Set: N:\CRF3\04082002\I454651B.raw

L:5 M:220 C: Keyword misspelled or invalid format, [(1) GENERAL INFORMATION:]
L:13 M:220 C: Keyword misspelled or invalid format, [(ii) TITLE OF INVENTION:]
L:33 M:220 C: Keyword misspelled or invalid format, [(A) APPLICATION NUMBER:]
L:34 M:220 C: Keyword misspelled or invalid format, [(B) FILING DATE:]